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Docket No. 826.1410/CJG

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Ken HASHIMOTO

Group Art Unit: 2745

Serial No.: 08/902,153

Examiner: S. Bhattacharya

Filed: July 29, 1997

Appeal No.:

For: POSITION INFORMATION MANAGEMENT SYSTEM

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Assistant Commissioner for Patents
Washington, D.C. 20231

BRIEF OF APPELLANT

In a Notice of Appeal filed April 4, 2001, the Applicant appealed the Examiner's December 5, 2000 Office Action finally rejecting claims 1-27, 32, and 33. Therefore, Appellant's brief is due June 4, 2001. The requisite filing fee as set forth in 37 C.F.R. §1.17(f) is enclosed herewith. Applicant submits this Appeal Brief in triplicate.

1. REAL PARTY IN INTEREST (37 C.F.R. §1.192(c)(1))

The real party in interest is FUJITSU LIMITED, the assignee of the subject application.

2. RELATED APPEALS AND INTERFERENCES ((37 C.F.R. §1.192(c)(2))

Appellant, Appellant's legal representatives, and the assignee are not aware of any other appeals or interferences that will directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

3. STATUS OF CLAIMS ((37 C.F.R. §1.192(c)(3))

Appealed claims 1-27, 32, and 33 have been rejected.

4. STATUS OF AMENDMENTS ((37 C.F.R. §1.192(c)(4))

An amendment was filed September 7, 2000 in response to a non-final Office Action

mailed June 8, 2000. The final Office Action was mailed December 5, 2000. No amendment under 37 C.F.R. §1.116 was filed in response to the December 5, 2000 Office Action.

5. SUMMARY OF INVENTION ((37 C.F.R. §1.192(c)(5))

Referring to Fig. 1 through Fig. 10D of the drawings, the features of the present invention as set forth in claims 1-27, 32, and 33 are summarized below.

The present invention relates to determining the position of a portable information terminal 11. The information terminal 11 may be located in a vehicle, for example, or it may be handheld and carried by the user. Examples of the external appearances of the portable terminal 11 are shown in Figs. 10A through 10D. The information terminal 11 of the present invention obtains position information by receiving radio waves from multiple positioning systems of different types. For example, the positioning systems may include the Global Positioning System (GPS) 12, radio equipment for a portable telephone 23, radio equipment for a Personal Handy-Phone System (PHS) 24 (which is a digital type of mobile terminal communications system standardized in Japan and other countries), and radio equipment for a radio marker 33 (described below). See Fig. 1 and pages 8 and 10 of the specification. The information terminal 11 uses the position information from the positioning system having the highest precision. If this positioning system is unavailable, then the information terminal automatically switches to the positioning system with the next highest precision, and so forth.

The information terminal 11 receives position information from one of the positioning systems based upon the precision and availability of the positioning systems. The precision of the position information decreases in the order of the GPS 12, the portable telephone base station 23 or the PHS base station 24, and the radio marker 33. The information terminal 11 attempts to receive position information from the highest precision positioning system available, and, if not available, automatically attempts to obtain position information from the next highest precision positioning system. See Fig. 2 and page 12 of the specification.

Thus, if the GPS 12 is not available, then the portable terminal 11 finds its position from the site of the nearest portable telephone base station 23 or PHS base station 24 (Fig. 2 and pages 11 and 13 of the specification). If the portable telephone base station 23 and PHS base station 24 are not available, then the portable terminal 11 finds its position from the radio marker 33 (pages 11 and 14 of the specification). Radio markers 33 are located at predetermined positions in a geographical area and generate radio signals indicating the latitude and longitude of the location (page 14 of the specification).

The information terminal 11 includes a direction detector 20 for independently

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determining its own position if none of the radio wave-based positioning systems is available. The direction detector 20 determines the direction of movement and distance moved from the site where the position of the portable terminal 11 was last measured. See Figs. 1 and 2 and page 15 of the specification. Thus, location finding and navigation may be continued, even when no radio wave-based positioning systems are available, as long as a starting point is known. See pages 5, 9, and 10 of the specification.

The portable terminal 11 periodically obtains its current position and sends the position information to a central system 10, where the information is logged (Fig. 5 and page 21 of the specification). Thus, the path taken by the user of the portable terminal 11, is tracked. When the portable terminal 11 has obtained the current position, a map indicating the current position is displayed at the portable terminal 11. If map data 21 that is retained in the portable terminal 11 for a predetermined time is insufficient to display the current position, the central system 10 downloads map data 28 containing the current position to the portable terminal 11. See pages 10-11 and 18-20 of the specification. Various displays are shown in Figs. 9A and 9B.

The map data 21 stored in the portable terminal 11 may be placed on a detachable storage medium such as an IC card or a miniature card. Thus, only the minimum map data of the zone in which the user seeks navigational help, need to be installed, reducing storage capacity size. See page 9 of the specification.

The central system 10 is also connected to a home terminal 32 so that the position of a holder of the information terminal 11, for example, an elderly person or a child carrying the information terminal 11, may be supervised (page 11 of the specification). When the central system 10 receives a request from a home terminal 32 for the current position of the holder of the information terminal 11, the central system 10 sends a call signal to the information terminal 11. If the information terminal 11 does not respond to the call signal, the central system 10 estimates the speed and direction of the information terminal 11 by referring to the log to provide an estimated current position. See Fig. 5 and page 22 of the specification.

If the information terminal 11 responds to the call signal, the central system 10 directs the information terminal 11 to send its current position to the central system 10, which sends the position information to the home terminal 32. If the supervised party remains at the same site longer than a predetermined amount of time, then an alarm is sounded on the home terminal 32 of the supervising party, indicating that the supervised party may need help. See page 37 of the specification. Similarly, a holder of an information terminal 11 may request position information from the holder of another information terminal 11 so that the holders of the information terminals may know the locations of one another (Figs. 6, 7A, 7B, 8A, and 8B and page 25 of

the specification).

6. ISSUES ((37 C.F.R. §1.192(c)(6))

- I. A first issue is whether claims 1, 2, 10, 11, 32, and 33 patentably distinguish over U.S. Patent No. 4,731,613 to Endo et al. A key subissue is whether the Endo patent teaches or suggests automatically changing from one of a plurality of radio wave-based positioning systems in an unavailable state to another one of the positioning systems in an available state.
- II. A second issue is whether claims 3, 4, 6-9, 12-13, and 15-27 patentably distinguish over the Endo patent in view of U.S. Patent No. 5,223,844 to Mansell et al. A key subissue is whether the Mansell patent teaches or suggests automatically changing from one of a plurality of radio wave-based positioning systems in an unavailable state to another one of the positioning systems in an available state. Another subissue is whether Endo/Mansell teach or suggest the downloading of map data from the control center 10 to the information terminal 11.
- III. A third issue is whether claims 5 and 14 patentably distinguish over the Endo patent in view of the Mansell patent and further in view of U.S. Patent No. 5,426,690 to Hikuma et al. A key subissue is whether Endo/Mansell/Hikuma teach or suggest raising an alarm when the holder of the information terminal remains in the same location for longer than a predetermined time period.

7. GROUPING OF CLAIMS ((37 C.F.R. §1.192(c)(7))

The applicant will provide separate patentability arguments with respect to the following groups of claims:

Group A: Claims 1, 10, 20, 24, 32, and 33 stand or fall together.

Group B: Claims 6-9, 15-18, 21, 22, 26, and 27 stand or fall together.

Group C: Claims 5 and 14 stand or fall together.

8. ARGUMENT ((37 C.F.R. §1.192(c)(8))

In the final Office Action, the Examiner rejected claims 1, 2, 10, 11, 32, and 33 under 35 U.S.C. §102(b) as being anticipated by Endo et al. (U.S. Patent No. 4,731,613). The Examiner also rejected claims 3, 4, 6-9, 12-13, and 15-27 under 35 U.S.C. §103(a) as being unpatentable over Endo in view of Mansell et al. (U.S. Patent No. 5,223,844). In addition, the Examiner rejected claims 5 and 14 under 35 U.S.C. §103(a) as being unpatentable over Mansell in view of Hikuma et al. (U.S. Patent No. 5,426,690).

The References

Endo relates to a positioning system that detects the movement of a vehicle and determines the position of the vehicle using a built-in motion sensor and a single satellite when other satellites serving the GPS are unavailable. The built-in motion sensor determines velocity and angular velocity of a vehicle based upon inertial navigation techniques. Inertial navigation is used when the GPS is unavailable. See Endo at col. 8, lines 20-29 and col. 9, lines 50-55.

Mansell relates to monitoring the status of vehicles, detecting certain alarm conditions, and monitoring or tracking the location of vehicles. The vehicle tracking and security system of Mansell allows immediate responses to vehicle thefts, accidents, breakdowns, or other emergencies. See Mansell at abstract and col. 2, lines 26-30. A vehicle's location is determined using GPS information. If a GPS receiver is not functioning properly or the vehicle is in a "blank area," position information is determined using an auxiliary position determination unit and other devices, such as a gyroscope, that allow extrapolation of position based on position and direction data previously provided through the GPS receiver. See Mansell at col. 9, lines 38-66.

Hikuma relates to a cordless telephone apparatus that enables resumption of an interrupted telephone call over the same pair of transmit-receive radio channels established for the call. The interruption may be caused, for example, by the internal battery of the remote unit losing contact with the battery contacts when a user replaces a battery. The apparatus base unit outputs an out-of-range signal when the apparatus detects that the received field strength in the receiving channel is below a prescribed level. A call resumption control circuit detects the out-of-range signal. A backup power source enables a volatile memory area to maintain channel connection state data in the event of a power supply interruption. See Hikuma at abstract; col. 1, lines 8-16; and col. 6, lines 5-37.

Group A: Claims 1, 10, 20, 24, 32, and 33

Claim 1 of the present invention, as amended, recites “a plurality of different kinds of positioning systems, ... each positioning system having its own radio equipment and using corresponding radio waves to determine the position of the information terminal” and “an information terminal automatically changing from any of said positioning systems in an unavailable state to an available one of said positioning systems ...”

The present invention distinguishes between external positioning systems that use radio waves to send position information to the information terminal 11, and internal “direction detectors” that detect the moving direction and moving speed of the information terminal 11 without using radio waves.

The information terminal 11 of the present invention receives radio waves from multiple, external positioning systems, and each positioning system has its own radio equipment that generates radio waves that are used by the information terminal 11 to determine position. The information terminal 11 uses the position information from the positioning system having the highest precision. If this particular positioning system is unavailable, then the information terminal 11 automatically uses the positioning system with the next highest precision, and so forth. Endo does not disclose these features. In Endo, when the GPS is unavailable, a built-in motion sensor is used to determine position. However, this built-in motion sensor does not use radio waves to determine position. Likewise, if a GPS receiver is not functioning properly or the vehicle is in a “blank area,” Mansell determines position information using an auxiliary position determination unit that does not use radio waves.

Similar to claim 1, independent claims 10, 20, 24, 32, and 33 also specify a plurality of different kinds of positioning systems, each positioning system having its own radio equipment and using corresponding radio waves to determine the position of the information terminal and automatically changing from an unavailable one of the positioning systems to an available one of the positioning systems. Thus, for at least the reasons presented above with respect to claim 1, it is submitted that independent claims 10, 20, 24, 32, and 33 and dependent claims 2-4, 11-13, 19, 23, and 25 patentably distinguish over the prior art.

Group B: Claims 6-9, 15-18, 21, 22, 26, and 27

Claim 6 of the present invention recites that the “information terminal transmits position information of a destination to the central system, thereby to automatically download map data ... from the central system ...” Claims 7-9, 15-18, 21, 22, 26, and 27 recite similar map-related

language.

Endo does not mention downloading map data from a central system to a vehicle. In Mansell, maps are only displayed at the control center and not downloaded to the vehicles. The control center of Mansell has display screens displaying one or more maps (Mansell at col. 4, lines 14-18 and col 33, lines 15-17). Also, Figs. 11-17 of Mansell illustrate mapping displays as they may be displayed to a control center operator (Mansell at col. 5, lines 58 to col. 6, line 14 and col. 27, lines 25-27). Thus, Mansell does not download map data for display in the vehicles.

In addition, claims 7 and 16 recite that the information terminal retains minimum map data ... "in the form of an IC card." The Examiner asserted on page 4 of the final Office Action that Mansell discloses map data in Fig. 11 that is downloaded from the central control center and can be stored on an IC card for a certain period of time. However, Mansell does not mention the use of IC cards or integrated circuits.

Therefore, it is submitted that claims 6-9, 15-18, 21, 22, 26, and 27 patentably distinguish over the combination of Endo and Mansell. In addition, these claims depend from the above-discussed independent claims and are also patentable over the prior art for the reasons discussed above.

Group C: Claims 5 and 14

Claim 5 of the present invention recites that "when the holder of said information terminal has not moved from an identical site for a predetermined time period, an alarm is raised upon a judgment that an unusual situation has occurred to the holder." Claim 14 recites similar language.

The present invention allows a user, such as a parent, to monitor the location of another user, such as a child. The parent may pre-select a certain geographical area to monitor and also specify a maximum amount of time the child may remain in the same location. If the child's information terminal 11 remains in the same location longer than this predetermined time period, an alarm is raised at the parent's terminal to notify the parent that an unusual situation may have occurred. For example, if the child is injured while skiing and cannot move away from the area, then the parent's terminal may sound an alarm. See pages 35-37 of the specification.

On page 6 of the final Office Action, the Examiner stated that Endo, as modified by Mansell, fails to specifically disclose the limitation of transmitting a notifying signal when a position is out of range, but that Hikuma discloses a radio telephone system wherein an alarm is sent to the user when the user moves outside the operational area of a portable telephone unit.

The Examiner then asserts on pages 6 and 7 of the final Office Action that it would have been obvious to combine the references so that an out-of-range unit can restore normal communication.

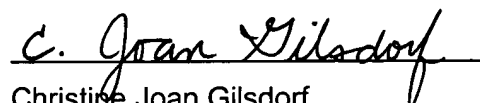
However, the present invention does not deal with the problem of the information terminal 11 being out of range. The present invention deals with the problem of the information terminal 11 remaining in the same location for longer than a predetermined amount of time. None of the cited references discloses raising an alarm when a user has remained in one position for longer than this predetermined time period. Therefore, it is submitted that claims 5 and 14 patentably distinguish over the prior art.

9. CONCLUSION

In summary, Applicant submits that claims 1-27, 32, and 33 patentably distinguish over the prior art. Accordingly, Applicant respectfully requests reversal of the Examiner's rejections.

The Commissioner is authorized to charge any Appeal Brief fee or Petition for Extension of Time fee for underpayment, or credit any overpayment, to Deposit Account No. 19-3935.

Respectfully submitted,
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10. APPENDIX ((37 C.F.R. §1.192(c)(9))

1. (TWICE AMENDED) A position information management system wherein information from a positioning system is acquired in an information terminal and is processed in a central system so as to manage information on a position of the information terminal, comprising:

a plurality of different kinds of positioning systems, including a Global Positioning System, each positioning system having its own radio equipment and using corresponding radio waves to determine the position of the information terminal; and

an information terminal automatically changing from any of said positioning systems in an unavailable state to an available one of said positioning systems to acquire a current position thereof by the use of the positioning system available.

2. (NOT AMENDED) The position information management system as set forth in claim 1, wherein said information terminal includes a built-in device which detects a moving direction and a moving speed of said information terminal, and even when all of said positioning systems have become unavailable, said information terminal independently detects and displays its current position.

3. (ONCE AMENDED) The position information management system as set forth in claim 1, wherein a third party can acquire a position of a holder of said information terminal through the central system.

4. (NOT AMENDED) The position information management system as set forth in claim 3, wherein the third party is the holder of said information terminal.

5. (TWICE AMENDED) The position information management system as set forth in claim 3, wherein a movement of the current position of the holder of said information terminal is supervised, and when the holder of said information terminal has not moved from an identical site for a predetermined time period, an alarm is raised upon a judgment that an unusual situation has occurred to the holder.

6. (ONCE AMENDED) The position information management system as set forth in claim 1, wherein said information terminal transmits position information of a destination to the central system, thereby to automatically download map data of an appropriate scale from

the central system on demand, the map data containing the current position of said information terminal and a position of the destination, and to display the map data.

7. (NOT AMENDED) The position information management system as set forth in claim 1, wherein said information terminal retains minimum map data of a region in which a holder thereof wants to move, in the form of an IC card.

8. (ONCE AMENDED) The position information management system as set forth in claim 1, wherein said information terminal retains map data downloaded from the central system for a certain period of time, and when the map data is needed again, it is searched for from within the map data retained in said information terminal and is displayed.

9. (NOT AMENDED) The position information management system as set forth in Claim 8, wherein said information terminal sets a time period for retaining map data of higher use frequency, to be longer than a certain period of time.

10. (TWICE AMENDED) An information terminal which can communicate with a central system for managing position information, and which acquires information from a positioning system so as to display information on a position of said information terminal, comprising:
an interface being serviced by a plurality of different kinds of positioning systems, including a Global Positioning System, each positioning system having its own radio equipment and using corresponding radio waves to determine the position of said information terminal; and
a controller automatically changing from any of the positioning systems in an unavailable state to an available one of the positioning systems to acquire a current position of said information terminal by the use of the positioning system available.

11. (ONCE AMENDED) The information terminal as set forth in claim 10, further comprising a built-in device which detects a moving direction and a moving speed of said information terminal, and wherein even when all of the positioning systems have become unavailable, said information terminal independently determines and displays its current position.

12. (NOT AMENDED) The information terminal as set forth in claim 10, wherein a third party can acquire the position of a holder of said information terminal through the central system.

13. (NOT AMENDED) The information terminal as set forth in claim 12, wherein the third party is the holder of said information terminal.

14. (ONCE AMENDED) The information terminal as set forth in claim 12, wherein a movement of the current position of the holder of said information terminal is supervised, and when the holder of said information terminal has not moved from an identical site for a predetermined time period, an alarm is raised upon a judgment that an unusual situation has occurred to the holder.

15. (ONCE AMENDED) The information terminal as set forth in claim 10, wherein said information terminal transmits position information of a destination to the central system, thereby to automatically download map data of an appropriate scale from the central system on demand, the map data containing the current position of said information terminal and a position of the destination, and to display the map data.

16. (NOT AMENDED) The information terminal as set forth in claim 10, wherein said information terminal retains minimum map data of a region in which a holder thereof wants to move, in the form of an IC card.

17. (ONCE AMENDED) The information terminal as set forth in claim 10, wherein said information terminal retains map data downloaded from the central system for a certain period of time, and when the map is data needed again, it is searched for from within the map data retained in said information terminal and is displayed.

18. (NOT AMENDED) The information terminal as set forth in claim 17, wherein said information terminal sets a time period for retaining map data of higher use frequency, to be longer than a certain period of time.

19. (ONCE AMENDED) The information terminal as set forth in claim 10, wherein said information terminal is a terminal of a portable telephone type, in which an antenna for the positioning systems is disposed in a cover for an input button portion of said information terminal.

20. (TWICE AMENDED) A portable radio terminal, comprising:

a position information acquisition unit obtaining current position information from one of a plurality of different kinds of positioning systems, including a Global Positioning System, each positioning system having its own radio equipment and using corresponding radio waves to determine the position of said portable radio terminal, and automatically changing from any of the positioning systems in an unavailable state to an available one of the positioning systems; and

a transmitting unit transmitting the position information obtained by said position information acquisition unit to another equipment through a radio channel, in compliance with a request for the position information made through the radio channel by the other equipment.

21. (ONCE AMENDED) The portable radio terminal as set forth in claim 20, further comprising a display unit displaying a map which contains a destination, on the basis of position information of the destination.

22. (TWICE AMENDED) The portable radio terminal as set forth in claim 21, wherein the display unit displays a map of an appropriate scale containing the current position of the portable radio terminal and said destination.

23. (ONCE AMENDED) The portable radio terminal as set forth in claim 20, further comprising:

an acquiring unit connected to additional equipment, for acquiring position information of a third party; and

an outputting unit outputting the acquired position information of the third party.

24. (TWICE AMENDED) A portable radio terminal, comprising:

a position information acquisition unit obtaining current position information from one of a plurality of different kinds of positioning systems, including a Global Positioning System, each positioning system having its own radio equipment and using corresponding radio waves to determine the position of said portable radio terminal, and automatically changing from any of the positioning systems in an unavailable state to an available one of the positioning systems; and

a connection unit connecting said portable radio terminal through a radio channel with a center which manages current position information of a plurality of portable radio telephone terminals;

a registering unit registering the current position information obtained by said position



API



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Claim

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information acquisition unit, in the center through said connection unit; and

an acquiring unit acquiring a current position of said portable radio terminal of a third party from the center through said connection unit.

25. (ONCE AMENDED) The portable radio terminal as set forth in claim 24, wherein an antenna for said position information acquisition unit is disposed in a cover for an input button portion of said portable radio terminal.

26. (ONCE AMENDED) The portable radio terminal as set forth in claim 24, further comprising a display unit displaying a map which contains the acquired current position of said portable radio terminal of the third party.

27. (TWICE AMENDED) The portable radio terminal as set forth in claim 26, wherein said display unit displays a map of an appropriate scale containing a current position of said portable radio terminal itself and the current position of said portable radio terminal of the third party.

32. (NOT AMENDED) A position information management system, comprising:
an information terminal receiving position information from a plurality of different kinds of positioning systems, each positioning system having its own radio equipment and using corresponding radio waves to determine the position of said information terminal; and
a controller automatically changing from an unavailable one of the positioning systems to an available one of the positioning systems.

33. (NOT AMENDED) A method for managing position information, comprising:
receiving position information by an information terminal from a plurality of different kinds of positioning systems, each positioning system having its own radio equipment and using corresponding radio waves to determine the position of the information terminal; and
automatically changing from an unavailable one of the positioning systems to an available one of the positioning systems.